UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Ellen Gilinsky, Ph.D., Director
Division of Water Quality Programs
Virginia Department of Environmental Quality
629 E. Main Street
P.O. Box 1105
Richmond, Virginia 23218

DEC 14 2010

Dear Dr. Gilinsky:

The U.S. Environmental Protection Agency (EPA) has reviewed the Virginia Department of Environmental Quality's (VADEQ) *Dissolved Oxygen Assessment for Virginia Beach*, which addresses three Consent Decree segments (Milldam Creek, Middle West Neck Creek and Upper Nawney Creek); and one non-consent decree segment (Lower Nawney Creek) currently listed as impaired due to low dissolved oxygen levels on Virginia's 2008 Section 305(b)/303(d) Integrated Report[1]. VADEQ's assessment confirms that these four segments do not require the development of a Total Maximum Daily Load (TMDL) because the implementation of an existing EPA-approved fecal bacteria TMDL for the watershed is expected to address the dissolved oxygen impairments. VADEQ is therefore requesting that these segments be placed in Category 4A of Virginia's 2010 Section 305(b)/303(d) Integrated Report. Category 4A waters are impaired but do not require the development of a TMDL because a TMDL for specific pollutant(s) is already complete and EPA-approved.

In the assessment conducted by VADEQ, monitoring data collected in Milldam Creek, Middle West Neck Creek, Upper Nawney Creek, and Lower Nawney Creek indicated that all four watersheds have low slopes and wetland conditions, strong seasonal variations in dissolved oxygen levels, and no point source discharges. However, high nutrient and organic solids concentrations have also been found in all four of these watersheds. The average concentrations of total nitrogen and total phosphorus exceed the U.S. Geological Survey national average background concentration criteria (TN = 1.0 mg/L, TP = 0.1 mg/L) at all monitoring stations. Similarly, the average concentrations of organic solids indicated that there are times when the streams are impacted by excessive organic matter.

The high nutrient and organic solids concentrations observed in these stream segments are higher than what would be expected from streams with minimal anthropogenic impacts. Therefore, anthropogenic impacts (agricultural practices, septic system failures, and residential runoff) were identified in the assessment as exacerbating the naturally low dissolved oxygen conditions in Milldam Creek, Middle West Neck Creek, Upper Nawney Creek, and Lower Nawney Creek.

[1] A complete 305(b)/303(d) listing history of these impaired segments is enclosed.

As indicated in the assessment, VADEQ will address the dissolved oxygen impairments in these stream segments through an implementation plan that has been developed for the Milldam Creek bacteria TMDL. This bacteria TMDL, approved by EPA on September 27, 2005, requires significant reductions in bacterial inputs in all four impaired stream segments, including a 100 percent loading reduction in direct deposition by livestock, a 100 percent loading reduction in failing septic tanks, and an 85%-99% loading reduction from agricultural and residential stormwater runoff. Thus, the implementation of this TMDL will significantly improve the overall water quality of these watersheds, including the excessive nutrient and organic solids concentrations.

The Best Management Practices (BMPs) recommended by the Milldam Creek Bacteria TMDL implementation plan will inhibit the pathways commonly created by anthropogenic impacts that lead to nutrient enrichment and low dissolved oxygen conditions in streams. For example, the TMDL implementation plan recommends the installation of raingardens and bioretention filters to reduce storm water runoff from developed areas. These BMPs will limit the amount of sediment containing both bacteria and nutrients that discharges to the impaired stream segments. Similarly, the implementation plan recommends the use of agricultural BMPs such as conservation tillage and vegetated stream buffers to decrease sediment loadings containing both bacteria and nutrients. The plan also requires the elimination of straight pipes and failing septic tanks, which will reduce both bacteria and nutrient loadings. Finally, the plan recommends that livestock be fenced out of flowing streams. This not only eliminates direct deposition of nutrients and organic matter, but also stabilizes the stream bank and will prevent sediment containing nutrients from reaching the stream.

VADEQ indicates that once the implementation plan for the Milldam Creek bacteria TMDL has been fully implemented, consideration will be given to developing an additional TMDL(s) if the low dissolved oxygen conditions do not improve. Additionally, since VADEQ has assessed Milldam Creek, Middle West Neck Creek, Upper Nawney and Lower Nawney Creeks as having naturally occurring low dissolved oxygen conditions that are currently being exacerbated by high nutrient and organic solids concentrations, it is EPA's understanding that VADEQ intends to revise their water quality standards for Milldam Creek, West Neck Creek, Upper Nawney and Lower Nawney Creeks during the next triennial review process to reflect the naturally low dissolved oxygen conditions of these streams.

Upon review of the *Dissolved Oxygen Assessment for Virginia Beach*, EPA approves VADEQ's request to place the dissolved oxygen impairments of Milldam Creek, Middle West Neck Creek, Upper Nawney and Lower Nawney Creeks under Category 4A of Virginia's 2010 Section 305(b)/303(d) Integrated Report. VADEQ demonstrated that the dissolved oxygen impairments in the streams are a result of anthropogenic impacts that can be reconciled through the fecal bacteria TMDL implementation plan developed for the watershed in 2005. Therefore, additional TMDLs for the dissolved oxygen impairments in Milldam Creek, Middle West Neck Creek, Upper Nawney Creek and Lower Nawney Creek are not warranted at this time.

If you have any questions or comments please call me, or have your staff contact Greg Voigt, Virginia TMDL Coordinator, at 215-814-5737.

Sincerely,

Jon M. Capacasa, Director
Water Protection Division

Enclosure

cc: David Lazarus, VADEQ

Dissolved Oxygen Assessment for Virginia Beach
Section 305(b)/303(d) Listing History

Impaired Stream	Impairment	1998 303(d) ID	2002 303(d) ID	2004 303(d) ID	2006 303(d) ID	2008 303(d) ID	305(b) ID
West Neck Creek - Middle	Dissolved Oxygen	*VAT-K41R	VAT-K41R-05	VAT-K41R-05	00644	K41R-05-DO	VAT-K41R_WNC01A00
Milldam Creek	Dissolved Oxygen	*VAT-K41R	VAT-K41R-02	VAT-K41R-02	00642	K41R-02-DO	VAT-K41R_MLD02A06
Nawney Creek - Upper	Dissolved Oxygen	*VAT-K42E	VAT-K42E-01	VAT-K42E-01	00645	K42E-01-DO	VAT-K42E_NWN01A00
Nawney Creek - Lower	Dissolved Oxygen	Not Listed	Not Listed	Not Listed	Not Listed	K42E-02-DO	VAT-K42E_NWN02A00

* Consent Decree ID